

- 16 -

WHAT IS CLAIMED IS:

1. A method for delivering multicast data traffic originating in a broadcast-based computer network to a plurality of destinations on a connection-based network, the method comprising:
  - 5 providing a bridge connecting the broadcast-based network and the connection-based network, the bridge providing one or more ports at which virtual channels in the connection-based network can terminate;
  - setting up a point-to-multipoint virtual channel in the connection-based network, the point-to-multipoint virtual channel having a root at a first one of the ports and a plurality of leaves at destination nodes in the connection-based network;
  - 10 in a filtering database associated with the bridge, associating the first one of the ports with one or more multicast addresses; and,
  - 15 at the bridge forwarding multicast data frames addressed to the multicast address and originating in the broadcast-based computer network to the first one of the ports.
2. The method of claim 1 wherein the broadcast-based network comprises an ethernet network and the data frames comprise ethernet data frames.
3. The method of claim 1 wherein the connection-based network comprises an asynchronous transfer mode network and the point-to-multipoint virtual channel comprises a multipoint ATM virtual circuit having a root associated with the first one of the ports.

- 17 -

4. The method of claim 3 wherein the broadcast-based network comprises an ethernet network and the data frames comprise ethernet data frames.
5. The method of claim 1 comprising providing in the connection-based network a point-to-point virtual channel connecting at least a first one of the destination nodes to a second one of the ports.
6. The method of claim 5 comprising, at the bridge, forwarding data traffic destined for the first one of the destination nodes which is not associated with the one or more multicast addresses to the second one of the ports.
7. The method of claim 5 comprising providing in the connection-based network a point-to-point virtual channel connecting each of the destination nodes to a different one of the ports.
8. The method of claim 7 comprising configuring the first one of the ports as a unidirectional port and subsequently discarding any data received at the bridge by way of the first one of the ports.
9. The method of claim 1 wherein the association of the multicast address and the first one of the ports is a static association.
10. The method of claim 5 comprising disabling bridge port to bridge port forwarding involving the first one of the ports.

- 18 -

11. The method of claim 1 wherein the broadcast-based computer network constitutes a segment of a virtual local area network having a plurality of segments and the destination nodes comprise bridges connecting the connection-based network to other segments of the virtual local area network.
12. The method of claim 11 wherein the broadcast-based network comprises an ethernet network and the data frames comprise ethernet data frames.
13. The method of claim 11 wherein the connection-based network comprises an asynchronous transfer mode network and the point-to-multipoint virtual channel comprises a multipoint ATM virtual circuit having a root associated with the first one of the ports.
14. The method of claim 13 wherein the broadcast-based network comprises an ethernet network and the data frames comprise ethernet data frames.
15. The method of claim 11 comprising providing in the connection-based network a point-to-point virtual channel connecting at least a first one of the destination nodes to a second one of the ports.
16. The method of claim 15 comprising, at the bridge, forwarding data traffic destined for the first one of the destination nodes which is not associated with the one or more multicast addresses to the second one of the ports.

- 19 -

17. The method of claim 15 comprising providing in the connection-based network a point-to-point virtual channel connecting each of the destination nodes to a different one of the ports.
- 5 18. The method of claim 17 comprising configuring the first one of the ports as a unidirectional port and subsequently discarding any data received at the bridge by way of the first one of the ports.
- 10 19. The method of claim 11 wherein the association of the multicast address and the first one of the ports is a static association.
20. The method of claim 15 comprising disabling bridge port to bridge port forwarding involving the first one of the ports.
- 15 21. The method of claim 20 wherein the point-to-point virtual channel comprises a bidirectional virtual channel.
22. The method of claim 21 comprising delivering control information related to the multicast data frames from the first one of the destination nodes to the bridge by way of the point-to-point virtual channel.
- 20 23. The method of claim 12 comprising forwarding video data to the plurality of destinations by way of the point-to-multipoint virtual channel.
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- 20 -

24. The method of claim 23 comprising forwarding control signals associated with the video data over the point-to-point virtual channel to a source of the video data on the broadcast-based network.
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25. The method of claim 12 comprising forwarding audio data to the plurality of destinations by way of the point-to-multipoint virtual channel.
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26. The method of claim 11 comprising transmitting data in the broadcast-based network in frames and transmitting data in the connection-based network in fixed-size cells wherein the frames are not equal in size to the cells.
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27. The method of claim 1 comprising transmitting data in the broadcast-based network in frames and transmitting data in the connection-based network in fixed-size cells wherein the frames are not equal in size to the cells.
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28. The method of claim 27 wherein the frames are variable-size frames.
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29. The method of claim 28 wherein the connection-based network comprises an asynchronous transfer mode network and the point-to-multipoint virtual channel comprises a multipoint ATM virtual circuit having a root associated with the first one of the ports and

- 21 -

the method comprises carrying the frames in cells according to the AAL5 protocol.

30. The method of claim 11 comprising configuring the virtual local  
5 area network by applying a spanning tree protocol and, in applying the spanning tree protocol, ignoring the point-to-multipoint virtual channel.
31. The method of claim 5 comprising configuring the point-to-  
10 multipoint and point-to-point virtual channels to provide levels of quality of service which are different from one another.
32. The method of claim 15 comprising configuring the point-to-  
15 multipoint and point-to-point virtual channels to provide levels of quality of service which are different from one another.
33. The method of claim 1 comprising transmitting data in the  
broadcast-based network in frames and transmitting data in the  
connection-based network in fixed-size cells wherein the frames  
20 are not equal in size to the cells.
34. The method of claim 33 comprising, at the destination nodes,  
adapting data received by way of the point-to-multipoint virtual  
channel to data frames having a size different from the fixed-size  
25 cells.

35. The method of claim 34 wherein the destination nodes and the root of the virtual channel are located within a single device.
36. A method for carrying multicast data traffic originating at a source segment of a virtual network to a plurality of destination segments of the virtual network, the source and plurality of destination segments each connected to a connection-based network by a bridge, the method comprising:
- at a first bridge connected to the source segment, associating at least one multicast address with a first remote interface port and configuring the remote interface port as an ingress-only port;
- provisioning in the connection-based network a point-to-multipoint virtual channel having a root endpoint at the remote interface port and a plurality of leaf nodes;
- directing multicast data addressed to the at least one multicast address to the first remote interface bridge port; and,
- passing the multicast data to the destination segments by way of the point-to-multipoint virtual channel.
37. The method of claim 36 wherein the leaf endpoints are each at a port on the bridge associated with one of the destination segments and the method comprises configuring the ports on the bridges associated with each of the destination segments as egress-only ports.
38. The method of claim 37 comprising providing a bidirectional point-to-point virtual channel in the connection-based network

having an endpoint at a second remote interface port of the first bridge and another endpoint connected to and receive data from one of the destination segments.

5 39. The method of claim 37 comprising providing a plurality of  
bidirectional point-to-point virtual channels in the connection-  
based network, each of the point-to-point virtual channels having  
an endpoint at a corresponding second remote interface port of the  
10 first bridge and another endpoint connected to receive data from a  
corresponding one of the destination segments.

40. The method of claim 39 wherein the connection-based network  
comprises an ATM network and directing multicast data addressed  
to the at least one multicast address to the first remote interface  
15 bridge port comprises encapsulating the multicast data into ATM  
cells.

41. A bridge device comprising:  
a network interface configured to receive variable sized data  
20 frames from a first network;  
a plurality of bridge ports;  
a switching fabric configurable to provide data connections  
between the bridge ports and a plurality of external data  
connections, the external data connections each associated with  
25 one of one or more output interfaces;  
a point-to-multipoint virtual channel configured in the  
switching fabric, the point-to-multipoint virtual channel having a



- 24 -

root at a first one of the bridge ports and a plurality of leaves, the leaves each connected to one of the external data connections; and,

a filtering database associated with the bridge, the filtering database containing a first entry associating one or more multicast addresses with the first one of the bridge ports.

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42. The bridge of claim 41 wherein the switching fabric comprises an ATM switching fabric and the point-to-multipoint virtual channel comprises a multipoint ATM virtual circuit.

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43. The bridge of claim 42 comprising a point-to-point virtual channel configured in the switching fabric, the point-to-point virtual channel connecting a second one of the ports to a second one of the external data connections, the first and second ones of the external data connections extending to a common destination node.

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44. The bridge of claim 41 wherein the first entry is a static entry and the bridge is configured to forward to the first port only those frames which have a multicast address which matches the static entry.

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45. A virtual local area network comprising:  
a plurality of segments interconnected by a connection-based network;

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- 25 -

a bridge associated with each of the segments each bridge connecting a corresponding one of the segments to the connection-based network;

5 a first bridge associated with a first one of the segments, the first bridge comprising a plurality of bridge ports each capable of being connected to a virtual channel in the connection-based network;

10 a point-to-multipoint virtual channel in the connection-based network, the point-to-multipoint virtual channel having a root node associated with a first one of the bridge ports and a plurality of leaf nodes, each of the leaf nodes connected to one of the bridges corresponding to another one of the segments;

15 a point-to-point virtual channel in the connection-based network, the point-to-point virtual channel connecting a second one of the bridge ports to one of the bridges corresponding to another one of the segments.

46. The local area network of claim 45 wherein the point-to-point virtual channel provides a bidirectional data connection and the  
20 point-to-multipoint virtual channel provides a unidirectional data connection.

47. The local area network of claim 45 wherein the first network segment comprises an ethernet network segment.

25 48. The local area network of claim 47 wherein the connection-based network comprises an asynchronous transfer mode network and

- 26 -

the point-to-multipoint virtual channel comprises a point-to-multipoint virtual circuit.